UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/938,492	08/27/2001	Michael Mehigan	740250-849	2877

78198 7590 03/20/2009

Studebaker & Brackett PC
1890 Preston White Drive
Suite 105
Reston, VA 20191

EXAMINER	
THOMPSON, JAMES A	
ART UNIT	PAPER NUMBER
2625	

MAIL DATE	DELIVERY MODE
03/20/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL MEHIGAN

Appeal 2008-5850
Application 09/938,492
Technology Center 2600

Decided[1]: March 20, 2009

Before MAHSHID D. SAADAT, ROBERT E. NAPPI,
and MARC S. HOFF, *Administrative Patent Judges*.

SAADAT, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from a Non-final Rejection of claims 1-4 and 6-14. Claim 5 has been canceled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

---

[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic paper).

STATEMENT OF THE CASE

Appellant's invention relates to a method of processing a halftone color image when the halftone color image is to be printed in monochrome. The method is performed by processing a line-like part of the image using a clustered dot dithering or a dispersed dot dithering according to a predetermined property of the line-like part (Spec. 4). Claim 1, which is representative of the claims on appeal, reads as follows:

> 1. A method of processing a halftone color image when the halftone color image is to be printed in monochrome, the method comprising the steps of:
>
> detecting a predetermined property of a line-like part of the halftone color image, and
>
> processing the line-like part of the halftone color image by a clustered dot dithering technique or a dispersed dot dithering technique according to the predetermined property of the line-like part,
>
> wherein the predetermined property includes both the thickness and the density of the line-like parts so that, when the line-like part is of a thickness smaller than a first threshold value and at the same time is of a density higher than a second threshold value, the part is processed by the dispersed dot dithering technique and otherwise the part is processed by the clustered dot dithering technique.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Kanno	US 4,998,122	Mar. 5, 1991
Harrington	US 5,153,576	Oct. 6, 1992
Ostromoukhov	US 5,438,431	Aug. 1, 1995
Hines	US 6,034,782	Mar. 7, 2000

Claims 1, 8, 10, and 12-14 stand rejected under 35 U.S.C. § 103(a) based upon the teachings of Kanno and Ostromoukhov.

Claims 2, 3, 7, 9, and 11 stand rejected under 35 U.S.C. § 103(a) based upon the teachings of Kanno, Ostromoukhov, and Harrington.

Claim 4 stands rejected under 35 U.S.C. § 103(a) based upon the teachings of Kanno, Ostromoukhov, and Harrington, and further in view of engineering design choice.

Claim 6 stands rejected under 35 U.S.C. § 103(a) based upon the teachings of Kanno, Ostromoukhov, and Harrington, and further in view of Hines.[2]

We make reference to the Brief (filed Jan. 12, 2007) and the supplemental Answer (mailed Sep. 11, 2007) for the respective positions of Appellant and the Examiner. Only those arguments actually made by Appellant have been considered in this decision. Arguments which Appellant did not make in the Brief have not been considered and are deemed waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

ISSUE

The issue is whether Appellant has shown that the Examiner erred in rejecting the claims under 35 U.S.C. § 103. The issue specifically turns on whether one of ordinary skill in the art would have combined the disclosures of Kanno and Ostromoukhov and, if so, whether the combination of the applied references teaches the claimed process by a clustered dot dithering technique or a dispersed dot dithering technique.

---

[2] The rejection of claims 10, 11, and 14 under 35 U.S.C. § 101 is withdrawn as indicated on page 10 of the Examiner's Answer.

FINDINGS OF FACT

Kanno

1. Kanno relates to image binarization that first divides an image into regions according to the image features and then performs the binary-encoding processing, which is most appropriate to these divided regions. (Col. 3, ll. 21-24).

2. Kanno analyzes the image data to determine whether a picture element of interest represents a character, a photograph, or a bold character, and then binary-encodes the image of the picture elements in different ways on the basis of the determination. (Col. 4, ll. 13-21).

3. As depicted in Figure 3, a dithering matrix of the threshold values corresponding to the image densities is consulted to determine the bold-character portion. (Col. 5, ll. 3-27).

Ostromoukhov

4. Ostromoukhov relates to the synthesis and display/print of digital halftone images on various raster output devices, in particular on display devices (cathode ray tubes, plasma displays, liquid crystal displays) or on printing devices (printers, telefaxes). (Col. 1, ll. 8-15).

5. As the background, Ostromoukhov discusses two main families of dithering methods: (a) dispersed-dot ordered dithering, and (b) clustered-dot ordered dithering. (Col. 1, ll. 27-39).

6. Ostromoukhov discloses that in dispersed-dot dithering, the black dots are distributed within each dither element so as to ensure maximal dispersion. This method produces relatively good results when dealing with fine details (for instance, small objects, letters). (Col. 1, ll. 40-47).

7. In the case of clustered-dot dithering, which is the method most commonly used for high and medium resolution devices, Ostromoukhov discloses that the black dots are clustered in the middle of each screen element, thus forming round figures. The images produced using this method are quite faithful to the original and are visually pleasing. (Col. 1, l. 63 – col. 2, l. 4).

PRINCIPLES OF LAW

> Section 103 forbids issuance of a patent when "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."

KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1734 (2007).

The Supreme Court has held that in evaluating the obviousness of combining elements, a court need not find specific teachings, but rather may consider "the background knowledge possessed by a person having ordinary skill in the art" and "the inferences and creative steps that a person of ordinary skill in the art would employ." *See KSR*, 127 S. Ct. at 1740-41. "The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1161 (Fed. Cir. 2007) (quoting *KSR,* 127 S. Ct. at 1739). "One of the ways in which a patent's subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent's claims." *KSR*, 127 S. Ct. at 1742.

ANALYSIS

Appellant does not dispute the teachings of Kanno with respect to using various thresholds to determine whether a portion of an image is a character, a photo, or a bold character and instead, focus on whether a "second dithering technique" is actually disclosed (Br. 11). Appellant acknowledges that dispersed-dot ordered dithering and clustered-dot ordered dithering are discussed in Ostromoukhov, but only in the context of the background of the disclosure. *Id.* Appellant contends that the actual disclosed and claimed invention of Ostromoukhov are directed to improvements made to dispersed-dot dithering and not to a method in which either dispersed-dot dithering or clustered-dot dithering may be used (Br. 11-12). In particular, Appellant argues that Ostromoukhov focuses on certain types of ink-jet printers without specific teachings or suggestion directed to processing a halftone color image in order to print a monochromatic image (Br. 12).

The Examiner responds that Kanno uses two different dithering techniques based on the results from processing the characteristics of the image to be printed or a determination as to whether the image corresponds to bold or normal character data (Ans. 11). The Examiner further asserts (Ans. 13) that while Ostromoukhov particularly focuses on dispersed-dot dithering technique in the disclosure, the discussion in the background section related to using dispersed-dot dithering or clustered-dot dithering based on the level of detail sought, is available as prior art to one of ordinary skill in the art.

We agree with the Examiner's analysis of Ostromoukhov and find that printing the halftone image in Kanno would have benefited from the

dispersed-dot dithering or clustered-dot dithering techniques where each technique provides better results for a specific image based on the threshold value corresponding to image density (FF 1-3). Thus, reading the reference as a whole, we find that the teaching value of Ostromoukhov also lies in the background discussion of how each of the two dithering techniques is preferred for different types of images and their size and/or density (FF 4-5). The fact that the disclosed invention in Ostromoukhov relates to one type of dithering does not preclude relying on what the reference discloses as a whole, including the background discussion, and apply the appropriate dithering technique for each of the two types of image data in Kanno. As described in Ostromoukhov, each of the disclosed dithering techniques provide better results for a different image density (FF 6-7), similar to the images distinguished by the threshold values in Kanno.

Additionally, contrary to Appellant's argument (Br. 12) that Ostromoukhov limits the printing resolution range without suggesting processing a halftone color image and printing a monochromatic image, Kanno is relied on for disclosing processing of halftone images. In that regard, as argued by the Examiner (Ans. 13), and consistent with the holdings in *KSR* and *Leapfrog*, the advantages of each of the dithering techniques, as discussed in Ostromoukhov, make those techniques obvious alternatives for processing each of the image types of Kanno (FF 1-3) according to the property of the image data.

CONCLUSION

For all of the above discussed reasons, we find no error in the Examiner's position that one of ordinary skill in the art would have used the dithering techniques of Ostromoukhov in the image processing of Kanno to

improve the image processing for each type of image. Because Appellant has failed to point to any error in the Examiner's position, we sustain the 35 U.S.C. § 103 rejection with respect to claim 1 and also with respect to claims 8, 10, and 12-14, which Appellant has not argued separately (Br. 13). We also sustain the 35 U.S.C. § 103 rejection with respect to the remaining claims over various combinations of Harrington, design choice, and Hines with Kanno and Ostromoukhov since Appellant argues patentability of those claims merely based on their dependency upon claims 1 and 8 (Br. 13-15).

ORDER

The decision of the Examiner rejecting claims 1-4 and 6-14 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

BIM

STUDEBAKER & BRACKETT, P.C.
1890 PRESTON WHITE DRIVE
SUITE 105
RESTON, VA 20191